

Draft PDS-02, BSR/RESNET/ICC 301-2022 Addendum C-202x

Comment submission in lieu of online portal – unsure if initial submission on May 13th uploaded (browser or site issues?). I tried uploading again on Sunday May 14th (evening) but the submission form was already offline. Please forward this submission to the appropriate committee for consideration.

Submitted By: Cindy Zeis on behalf of the NEHERS Standards Committee
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This proposal is being issued on behalf of the Standards Committee of the Northeast Home Energy Rating System Alliance, which represents more than 260 Raters and 11 Providers from New Jersey to Maine.

Proposed language in question:

BSL = Battery Storage Losses, calculated as total annual energy based on the round-trip efficiency for the On-Site Battery Storage

Associated Definitions:

Battery Storage Losses – Charging and discharging energy losses associated with On-Site Battery Storage system(s).

On-Site Battery Storage – Electrical energy storage system on the site of the Rated Home accepting electrical energy from On-Site Power Production, storing that electric energy, and then dispatching the stored electric energy to power building loads in accordance with a defined battery energy storage system power dispatch protocol.

Initial Questions/Considerations:

1. Addition of definition of “round-trip efficiency” (RTE): The round-trip efficiency (RTE) of an energy storage system is defined as the ratio of the total energy output by the system to the total energy input to the system, as measured at the point of connection.
2. Clarification of “on-site battery storage” definition to include what an “electrical energy storage system” includes.
 - a. Is the term “system” here defined as the battery storage unit only or the system as coupled with the PV system? I believe this should include the entire system as outlined in the example in item 3 below.
3. Are we using the listed round-trip efficiency of the battery storage unit (BSU) or accounting for the total round-trip efficiency of the PV system inverter (DC to AC efficiency) and the BSU (AC to AC efficiency).
 - a. Example: BSU efficiency 90% coupled with Inverter efficiency 97% = System round-trip efficiency 87.3%.
4. Should a derate factor be applied for installations in climate zones where ambient temperatures exceed the limits of testing temperatures (~75-100°F)?
5. Should we be paying more (or equal) attention to the sizing of these storage systems since this could greatly affect the efficiency of the system overall?
6. This may be good for typical residential battery storage units but discounts site-built units that may include multiple battery storage units.

Recommendation: Recommend striking this entirely and provide some context for a future amendment if/when battery technology & associated data is more readily available.

Alternative Recommendation: If it has already been determined that this language is needed for clarification of already approved changes an alternative recommendation is as follows:

If including the round-trip efficiency (RTE) as a means for determining BSL, the RTE should include the total system round-trip efficiency which includes the labeled RTE of the battery storage unit and the PV inverter efficiency when coupled with a PV system. System round-trip efficiency calculations could be made by the software utilizing modeler inputs of PV inverter efficiency (already available) multiplied by the labeled battery storage unit efficiency (new modeler input).

BSL = Battery Storage Losses, calculated as total annual energy based on the **system** round-trip efficiency.

Add Definitions:

Unit Round Trip Efficiency – The labeled efficiency of the battery storage unit.

System Round-Trip Efficiency: The labeled efficiency of the battery storage unit x the PV inverter efficiency.
Example: BSU efficiency 90% coupled with Inverter efficiency 97% = System round-trip efficiency 87.3%.